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INTRODUCTION.

This REVIEW treats generally the meteorological conditions of the United States and Canada for August, 1888, and is based upon reports of regular and voluntary observers of both countries.

Descriptions of the storms that occurred over the north Atlantic Ocean are also given, and their approximate paths shown on chart i, on which also appears the distribution of icebergs and the limits of fog-belts west of the fortieth meridian.

The severest storm of the month occurred along the trans-Atlantic tracks east of the fortieth meridian from the 22d to the 24th, inclusive. No ice was reported, except along the coast of Newfoundland, in the vicinity of Belle Isle, and in Belle Isle Straits.

The month was warmer than the average on the north Pacific coast, in the region to the northward of Montana, and along the southwestern border from western Texas to the mouth of the Colorado River. The mean temperature was normal or below in all other districts, the region of greatest deficiency extending from the central Mississippi and lower Ohio valleys northwestward to Minnesota and Dakota.

The rainfall was deficient in portions of Florida and the south Atlantic states, in the Rio Grande Valley, in the region extending from the upper lakes westward to the Pacific coast, and in the central and southern plateau districts. The most important feature in connection with this subject was the remarkably heavy falls in the Gulf states, where more than double the average amount of rain fell. A marked excess over the average also occurred in the southern slope, and in the Ohio and Missouri valleys.

Destructive freshets occurred in many portions of the Southern states as a result of the remarkably heavy rains which fell in that section.

Violent local storms were frequent during the month, those occurring on the 20th and 21st in the middle Atlantic states being, in some instances, the most severe that have occurred in that region for many years.

In the preparation of this REVIEW the following data, received up to September 20, 1888, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at 133 Signal Service stations and 23 Canadian stations, as telegraphed to this office; 177 monthly journals and 176 monthly means from the former and 23 monthly means from the latter: 366 monthly registers from voluntary observers; 60 monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the Hydrographic Office, United States Navy, and the "New York Herald Weather Service;" monthly weather reports from the local weather services of Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New England, New Jersey, North Carolina, Ohio, Pennsylvania, South Carolina, and Tennessee, and the Central Pacific Railway Company; trustworthy newspaper extracts, and special reports.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for August, 1888, determined from observations taken daily at 8 a. m. and 8 p. m., is shown by isobarometric lines on chart ii. As the plan of taking tri-daily observations at Signal Service stations was on the 1st of July, 1888, superseded by that of taking but two at the hours stated, chart ii will in future exhibit mean pressures determined from two observations. A protracted series of hourly observations has shown that the difference between the mean pressure determined from two observations taken at the hours above named and that determined from tri-daily observations is so very slight as to be practically inappreciable.

As in the preceding month the regions of greatest mean pressure cover the south Atlantic and north Pacific coasts, where the barometric means reached 30.05, or slightly above. The pressure was, as is usual in August, least over the western part of the southern plateau, where the means fell to 29.8 and below. Yuma, Ariz., reported the lowest mean, 29.76, and Augusta, Ga., the highest, 30.09, giving a range of .33 for the whole country.

As compared with the preceding month the changes in mean pressure have been, in general, very slight, and over much of the country the means for the two months were practically the same. In the west Gulf states and on the Pacific coast, from the Columbia River southward to central California, the August means averaged about .05 below those for July, while over the central Rocky Mountain slope they were about .05 higher, these changes representing the extreme departures as compared with July.

The departures from normal pressure at Signal Service stations are given in the table of miscellaneous meteorological data. Over the greater part of the country the departures from normal were unimportant. The greatest excess occurred in the south Atlantic coast and over the northern Rocky Mountain slope, and the greatest deficiency occurred in New England and the Canadian Maritime Provinces, the maximum excess being .06 and the maximum deficiency .08.

BAROMETRIC RANGES.

The monthly barometric ranges at the various Signal Service stations are also given in the table of miscellaneous meteorological data. The ranges, as usual, conform to the general rule, that is they increase with the latitude and decrease slightly, though somewhat irregularly, with increasing longitude. Along the Atlantic coast the extreme ranges are: .19 at Key West, Fla.,